



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/718,258 | 11/19/2003 | Robert Tornoe | EIMC-0019 | 8165 |
| 7590 04/05/2006 | | | EXAMINER | |
| David B. Ritchie Thelen Reid & Priest LLP P.O. Box 640640 San Jose, CA 95164-0640 | | | CANNING, ANTHONY J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2879 | |

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/718,258

Applicant(s)

TORNOE ET AL.

Examiner

Anthony J. Canning

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Acknowledgement of Amendment

1. The amendment to the instant application was entered on 20 January 2006.

Claim Objections

2. Claim 8 is objected to because of the following informalities: claim 8 depends from claim 6, and is a duplicate claim of claim 6. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Delory et al. (U.S. 4,358,708) (of record) in view of Schult (U.S. 2002/0008478 A1) (of record).

5. As to claim 1, Delory et al. disclose an electron tube including: an electrically insulating wall portion (see Fig. 1, item 5; column 2, lines 1-2); a first electrode adapted to collect electrons of a first energy level (see Fig. 1, item 1; column 1; lines 58-61); the first electrode is formed on the inside of the insulating wall material (see Fig. 1, items 1 and 5), and comprising a metallization layer formed on the inside portion of the insulating wall portion (see Fig. 1, item 4; column 1, lines 63-67); and an electrical path coupling the first electrode to a terminal electrode on an exterior to the tube (see Fig. 1, item 2; column 1, lines 63-64). Delory et al. fail to disclose a second electrode adapted to collect electrons of a second energy level; and an insulating portion for electrically isolating the first and second electrodes from one another.

Schult discloses an electron tube with a multistage depressed collector with first and second electrodes collecting electrons of first and second energy levels (see Fig. 1, items 42, 44, 46, 48 and 52; paragraph 0024), with an insulating portion to electrically isolate the first and second electrodes from each other (see Fig. 1, items 43, 45, 47, and 49; paragraph 0025). Schult further discloses that various voltages are applied to the electrodes, which collect electrons of different energy levels (paragraph 0025), the insulators prevent arcing between the electrodes (paragraph 0025).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electron tube of Delory et al. to include a second electrode adapted to collect electrons of a second energy level; and an insulating portion for electrically isolating the first and second electrodes from one another, as taught by Schult, to collect

Art Unit: 2879

electrons of different energy levels, and having insulators to prevent arcing between the electrodes.

6. As to claim 2, Delory et al. disclose an electron tube including: an electrically insulating wall portion (see Fig. 1, item 5; column 2, lines 1-2); a first electrode adapted to collect electrons of a first energy level (see Fig. 1, item 1; column 1; lines 58-61); the first electrode is formed on the inside of the insulating wall material (see Fig. 1, items 1 and 5), and comprising a metallization layer formed on the inside portion of the insulating wall portion and a cylindrical copper member including a plurality of circularly disposed fingers and slots, the fingers are affixed at a distal end therefor to the metallization layer (see Figs. 1 and 4, items 4, 30 and 31; column 1, lines 63-67; column 2, lines 42-64); and an electrical path coupling the first electrode to a terminal electrode on an exterior to the tube (see Fig. 1, item 2; column 1, lines 63-64).

Delory et al. fail to disclose a second electrode adapted to collect electrons of a second energy level; and an insulating portion for electrically isolating the first and second electrodes from one another.

Schult discloses an electron tube with a multistage depressed collector with first and second electrodes collecting electrons of first and second energy levels (see Fig. 1, items 42, 44, 46, 48 and 52; paragraph 0024), with an insulating portion to electrically isolate the first and second electrodes from each other (see Fig. 1, items 43, 45, 47, and 49; paragraph 0025). Schult further discloses that various voltages are applied to the electrodes, which collect electrons of different energy levels (paragraph 0025), the insulators prevent arcing between the electrodes (paragraph 0025).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electron tube of Delory et al. to include a second electrode adapted to collect electrons of a second energy level; and an insulating portion for electrically isolating the first and second electrodes from one another, as taught by Schult, to collect electrons of different energy levels, and having insulators to prevent arcing between the electrodes.

7. As to claim 9, Delory et al. disclose an electron tube including: a linear beam electron tube (see Fig. 1; column 1, lines 7-13) including: an insulating wall portion (see Fig. 1, item 5; column 2, lines 1-2); a first electrode adapted to collect electrons of a first energy level (see Fig. 1, item 1; column 1; lines 58-61); the first electrode is formed on the inside of the insulating wall material (see Fig. 1, items 1 and 5); and an electrical path coupling the first electrode to a terminal electrode on an exterior to the tube (see Fig. 1, item 2; column 1, lines 63-64). Delory et al. fail to disclose a second electrode adapted to collect electrons of a second energy level; and an insulating portion for electrically isolating the first and second electrodes from one another.

Schult discloses an electron tube with a multistage depressed collector with a ceramic shell that creates a vacuum envelope (see Fig. 1, item 36; paragraph 0023), first and second electrodes collecting electrons of first and second energy levels (see Fig. 1, items 42, 44, 46, 48 and 52; paragraph 0024), with an insulating portion to electrically isolate the first and second electrodes from each other (see Fig. 1, items 43, 45, 47, and 49; paragraph 0025). Schult further discloses that various voltages are applied to the electrodes, which collect electrons of different energy levels (paragraph 0025), the insulators prevent arcing between the electrodes (paragraph 0025).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electron tube of Delory et al. to include a second electrode adapted to collect electrons of a second energy level; and an insulating portion for electrically isolating the first and second electrodes from one another, as taught by Schult, to collect electrons of different energy levels, and having insulators to prevent arcing between the electrodes.

8. As to claims 3 and 4, Delory et al. and Schult disclose an electron tube in accordance with claims 1 and 2. Delory et al. further disclose that the electrically insulating wall portion comprises a ceramic material (see Fig. 1, item 5; column 1, lines 66-67 and column 2, lines 1-2).

9. As to claims 5, 6 and 8, Delory et al. and Schult disclose an electron tube in accordance with claims 3 and 4. Delory et al. further disclose that tube further comprises a fluid cooling apparatus in thermal contact with an exterior of said tube (see Fig. 1, item 6; column 1, lines 14-19; column 1, lines 66-67 and column 2, lines 1-2).

10. As to claim 7, Delory et al. and Schult disclose the electron tube of claim 5. Delory et al. discloses that the insulating wall is a ceramic, but fails to disclose that the ceramic is aluminum oxide, beryllium oxide or aluminum nitride. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use aluminum oxide, beryllium oxide or aluminum nitride as the ceramic wall, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ.

Art Unit: 2879

11. As to claim 10, Delory et al. and Schult disclose the electron tube of claim 9. Delory et al. further discloses that the first means for conducting electricity includes a layer of metallization (see Fig. 1, item 4; column 1, lines 63-67).

12. As to claims 11, 12 and 13, Delory et al. and Schult disclose the electron tube of claims 9 and 10. Delory et al. further disclose a metallization layer formed on the inside portion of the insulating wall portion and a cylindrical copper member including a plurality of circularly disposed fingers and slots, the fingers are affixed at a distal end therefor to the metallization layer via brazing (see Figs. 1 and 4, items 4, 30 and 31; column 1, lines 63-67; column 2, lines 42-64).

13. As to claims 14 and 15, Delory et al. and Schult disclose an electron tube in accordance with claims 12 and 13. Delory et al. further disclose that the electrically insulating wall portion comprises a ceramic material (see Fig. 1, item 5; column 1, lines 66-67 and column 2, lines 1-2).

Response to Arguments

14. The examiner acknowledges amendments to claims 1, 2, 9-11 and 13.

15. In light of the amendments to the independent claims, a new rejection has been given.

Final Rejection

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2879

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning *ae*
31 March 2006

Ashok
ASHOK PATEL
PRIMARY EXAMINER